places along the sea-coast were not sufficiently protected from contamination, and that, as a result thereof, the villages were always liable to out-breaks of cholera. He therefore suggested that wells should be sunk on good sites near the villages with parapet walls, impervious platform and sides to be lined with cement from the bottom of the well to the surface to prevent sub-soil pollution. There should be drains to carry away waste water from the wells. The wells should be provided with clean buckets etc. If the above wells were costly, he suggested that tube wells might be supplied. He requested that the question of the maintenance of the existing wells and of the construction of new wells in villages where there were none should receive the early attention of the Government.

Dewan's reply.—9 wells have already been sunk for the use of the sea-coast villages and the question of providing more wells is under investigation by the Sanitary and Public Works Departments. The matter will be considered.

67. The conversion of certain six feet traces in the Nedumangad taluk into roads.

Mr. Kumaraswami Veeriaperumal Pillai (Member, Nedumangad taluk) requested that the following six feet traces might be converted into roads in the interests of the inhabitants of Nedumangad :—

(1) Trace from Nedumangad Taluk Cutcherry to Anad to Kallar road—3½ miles.

(2) Trace from Nedumangad to Aruvikarai—3 miles.

Dewan's reply.—Noted.

68. The need for two roads and a bridge in the Chirayinkil taluk.

Mr. G. Ramakrishna Kurup (Member, Chirayinkil taluk) requested that the following traces might be improved and rendered cartable:—

(1) Trace from Madavur to Kilimanoor.

(2) Trace from Dalavapuram to Attingal.

As regards the first road, the Member said that the people of Madavur, Pallikal and other places disposed of the produce of those places at Kilimanoor and had great difficulties in doing so on account of the want of a cartable road. The proposed road would serve the public convenience to a very great extent. The second road would be a shorter distance to Warkalai from Attingal than the existing road.

He also pointed out that the want of a bridge in the Ayirur river on the road from Warkalai to Paripalli *via* Nadayara was a serious difficulty to the people especially in the rainy season. On behalf of the traders, merchants, the school-going population and the general public, he requested that the above bridge might be sanctioned at an early date.

Dewan's reply.—Noted.

69. Improvement of certain village roads in the Quilon taluk.

Mr. D. Govindan Valiathan (Member, Quilon taluk) requested that the following two village roads might be converted into cart roads in the interests of the large number of inhabitants of the Perinad and Thrikadavoor *pakuthies* :—

(1) Road from Kottayathu kadavu to Elampallur ; and

(2) Road from the Quilon Railway station to Kannanallur *via* Ayathil and Pattathanam.

He also presented two memorials from the said inhabitants, one praying for the early conversion of the first road and the other for a grant to the local Native Dispensary.

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Dewan's reply.—The roads mentioned by the Member are included as Nos. 25 A and 28 in the list of public works for the Quilon Division. They will be taken up in their turn.

70. The necessity for providing a sluice near the Paravoor Bar for the protection of cultivation.

Mr. Stephen Joseph (Member, Nominated) said that the existing practice was to keep open the Paravoor Bar from Edavom to Thulam and to close it from Vrischigom to Medom every year but that the agency employed for the purpose would not always be able to do so. During the current year, the bar opened at a time when it ought not to be open and it was not found possible to close it with the small allotment available for the purpose. The result was that the Makarom crop was completely damaged by the brine in the several adjoining *proverthies*. A satisfactory method of regulating the opening and closing of the Bar was therefore essential in the interests of both traffic and irrigation.

The Member suggested the following schemes for remedying the evil : —

1. One proposal was to build a head-wall to the height of the ordinary water level and to have a weir, with arrangements to discharge the flood-waters into the sea. In that case it was necessary to find out the level of the fields and what level of water could stagnate in the fields without damaging the crop and any surplus flood-water above it should be passed into the sea over the weir. It would not be possible to lower the level of water in the fields below the level of the top of the weir. That did not seem to be a very satisfactory arrangement. It was therefore necessary to provide a vent at a lower level with shutters, so that, when the sea level was lower, the water in the back-waters might be discharged into the sea, but when the sea level was higher the shutters could prevent any flow from the sea into the lake. If however a channel at right angles to the beach was cut, there was every probability of the channel getting silted up by the deposit of sea sand by wave action. To avoid that, the channel should be cut parallel to the sea to some distance protecting it from sea action by means of heaps of boulders etc., and then it should be let into the sea at a lower level.

2. If the above scheme was considered to be impracticable on investigation another scheme might be adopted to keep the fields from getting inundated. The wall referred to in the first scheme might be built sufficiently high above the maximum flood level. The volume of water brought down which went to inundate the fields might be easily calculated. The difference between the maximum flood level and the ordinary water level in the Quilon canal was two or three feet and the average section of the canal might be taken at forty feet. The velocity would be three miles per hour or four and a half feet per second. The discharge was thus $40' \times 2\frac{1}{2}' \times 4\frac{1}{2}'$ or 450 cubic feet per second. If an iron or masonry pipe to discharge the above volume of water with a velocity of 10 ft. per second was made, the diameter of the pipe should be $7\frac{1}{2}$ ft. It was possible to make such a pipe and the required velocity could be obtained by making the end of the pipe wherein the water entered nearly 10 ft. in diameter and tapering the same to the required diameter of $7\frac{1}{2}$ ft. By that arrangement the water would be driven through with a good velocity. The pipe should be of sufficient length so that it might extend for a few yards into the sea. That would then prevent the end from getting silted up. If necessary, a reflex shutter which would allow water from the lake to flow into the sea but which would prevent the sea water getting into the pipe might also be provided. Should it be considered that the system would not work if the pipe be laid at right angles to the beach, it might be taken a short distance along the beach and then discharged into the sea. The mouth of the pipe at the exit could not get silted up as the water would be flowing out with such tremendous velocity that it would wash away anything on its way.

The Member also pointed out in that connection that the Railway authorities, who were making arrangements for constructing a bridge across the Ithicara river, should be instructed to keep sufficient water-way to discharge the floods without affecting irrigation. The Railway authorities were now excavating the bar on

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